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THE AMERICAN HOROLOGIST

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Are you "Bench-Tied" too?

COMING TO THE CENTRAL BUSINESS MEN'S GET-TO-GETHER TO-NIGHT, DILTON?
NO, SMITH, I CAN'T .... GOT TO HAVE THIS WATCH READY FOR A CUSTOMER WHO'S LEAVING TOWN TOMORROW
1
I ORDERED THE PART IN PLENTY OF TIME IN FACT, SEVERAL DAYS AGO, BUT IT JUST ARRIVED IN THE AFTERNOON MAIL
I USED TO HAVE THAT TROUBLE TOO....
2
THE FOLLOWING MONTH
BUT THEN I STARTED SENDING MY ORDERS TO SWARTCHILD AND NOW I USUALLY HAVE THE MATERIAL EVEN BEFORE I'M READY TO START ON THE JOB... YOU OUGHT TO TRY THEM
I GUESS I WILL ..... IT'S CERTAINLY IMPORTANT TO BUY FROM A HOUSE THAT'S ACCURATE AND PROMPT
3
GOING TONIGHT, DILTON,..... THEY EAT AT 6:30 SHARP
YOU BET I AM! SINCE I TOOK YOUR ADVICE ABOUT ORDERING FROM SWARTCHILD, MY JOBS ARE ALWAYS READY.... NO MORE NIGHT WORK FOR ME. THANKS TO SWARTCHILD. I CAN JOIN THE GANG AGAIN

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★ **EDDIE DOWLING,** star and producer of a dozen brilliant Broadway successes, including "Honeymoon Lane" and "Thumbs Up"

★ **RAY DOOLEY,** famous comedienne of the "Follies" and "Vanities," who played opposite W. C. Fields and Will Rogers for many seasons

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G'ELGIN REVUE *

★ **BENNY GOODMAN,** and his sensational band . . . creators of the great new vogue for "swing" music

★ **HELEN WARD,** charming and talented young vocalist whose lovely voice has won nation-wide acclaim

And a galaxy of Guest Stars

strongest possible kind of watch selling to 71,000,000 listeners every week. The handsome display card shown here, printed in four brilliant colors, is being mailed to you. Put it in the window at once!

A WATCH COMPANY *Elgin, U.S.A.*

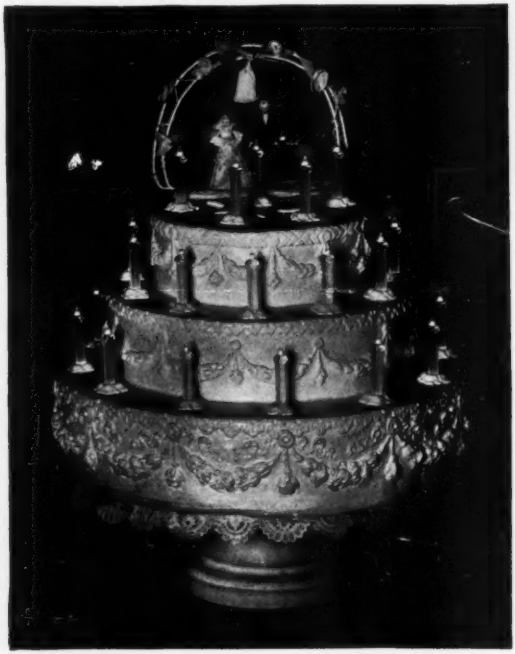
NEW GORGEOUS DISPLAY

SELLS WEDDING RINGS

ELECTRIC LIGHTED CANDLES

Has all the appearance of a real wedding cake.

Each beautiful glass candle, which looks so real and so beautiful, is individually and ingeniously illuminated by one master electric lamp.



No. 11993. Large Wedding Cake. Height 14", width 13"

This gorgeous model is splendid not only for your own window display, but for wedding parties and anniversaries, or as a special display for your own anniversary sales. Comes complete with bride and groom ornament as shown on top of cake. Has 30 candles, 2" high. Ready to use, complete with cord and plug..... **$5.65**

No. 11994—Silver finish cake with 25 candles..... **$5.65**

No. 11995—Golden finish cake with 50 candles..... **6.75**

The above two layer cake display lettered, on top, "Happy Birthday but it also can be used for weddi gift displays. Height 8", width 7½ Beautifully finished in white. Has candles, 1¼" high. Ready to u complete with cord and plug. No. 11992..... **$1.2**

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Two Beautiful Models

Candles are beautiful and are wax-life appearance. They are removable.

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An Appreciation and a Suggestion

LOUIS I. SCLOVE
Charleston, West Virginia

ONE day in January the postman brought to me what appeared at first glance to be an advertising pamphlet, pure and simple. I took off the wrapper and noted the heading: "The American Horologist — Official National Publication—January, 1936—Vol. 1—No. 1." Without further examination I decided it must be only a report of past year's work, the usual cut and dried record and not a living current discussion. So I laid it aside thinking that I would read it through whenever I had a few minutes to spare. I happened to come back to the store that evening, and took up the magazine to read its contents, with the door closed and no one about to disturb me. Imagine my pleasant surprise on turning the cover and examining the table of contents to learn that it was the nucleus for a trade paper, and association journal as well, established and maintained by watchmakers for watchmakers. My fancy carried me away, and I immediately envisioned the tremendous possibilities for constructive accomplishment inherent in such an undertaking, the benefits that might accrue to the association, the craft in general, and individual watchmakers in particular.

President's Message

I read first the president's message, and learned that the publication is largely the efforts of one person. I then turned to page 13 to read the editor's remarks on the objectives of the publication. There I seemed to grasp, between the lines, an expression of hopes and aspirations. Apparently, the editor, unlike myself, is not afflicted with wild flights of fancy. Nevertheless, there was expressed a definite yearning for something "bigger and better" for the trade. I next turned to page 20 to read the article entitled "Let's Go." There I read Mr. Jos. A. Voss's belief (and his idea as to the means), that this publication could be developed into a definitely worth-while trade journal, written by watchmakers for their brother craftsmen. His keynote was: "Join hands with the thousands of your friends to help make this a real publication." That impressed me with the idea that the responsibility lies with me, with every other watchmaker belonging to the National Association.

Editor's Task

The editor's task, as I have since learned, is really greater than any one person should be expected to assume. Every member should make some effort towards reaching the desired goal of a permanently established trade journal. Here is one suggestion for whatever it may be worth. The practice of sending the publication free of charge to members of the association is unwise. There should be some fixed charge, no matter how small. Let each member send in his pledge of five cents per copy for himself, and his willingness to distribute as many more copies as possible at the same rate to non-member watchmakers and jewelers in his community and vicinity. That would be a truly wonderful start. Then, as the publication increases in size, and improves in the quality of contents, let another voluntary increase in price be made. In my opinion, it is imporant that every member of the association be afforded such an opportunity to feel that he is actually participating in the building of a real trade paper. How about it? I should like to hear expressions from other members on this subject in the next issue of the American Horologist.

Make This Sign of Identification a Part of Your Equipment

Cart Spring Movement

Editor's Note:

Article appearing in January issue of this publication asked for further information relative to this unusual clock.

The desired information has been secured as following letter will indicate.

Feb. 4, 1936.

The American Horologist,
3226 East Colfax Avenue,
Denver, Colo.

Gentlemen:

The writer's attention has been called to the article on a cart spring movement by Mr. Samelius in the January issue of your journal. The writer does not have time to do any research work but readily recognizes the movement as the so-called wagon spring movement invented by Joseph Ives of Bristol. It is found from time to time in cases put out by others—the writer having definitely in mind a so-called double steeple clock made by Birge & Fuller and fitted with a wagon spring movement. The writer also owns a hanging clock with a Joseph Ives wagon spring movement. Some of these clocks were put out under a New York imprint but we believe were made in Bristol. The writer has a copy of a Letters Patent of Joseph Ives showing the general use of the wagon spring and is enclosing a copy herewith as of further interest to you. The original copy of the patent is owned here in Bristol as well as copies of patents issued to Ives as early as 1822.

Very truly yours,

THE E. INGRAHAM COMPANY,
Ed. Ingraham, President.

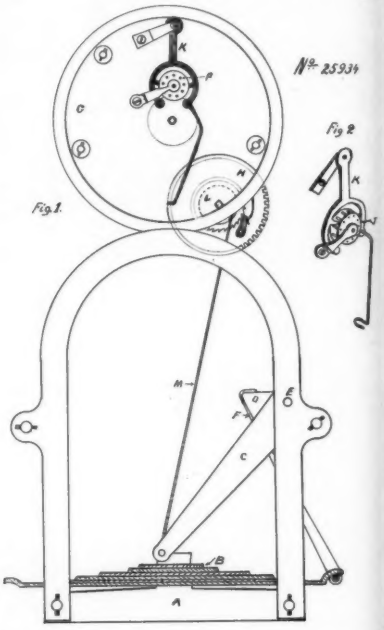
THE following is a transcript from Letters Patent No. 25934, issued to Joseph Ives of Bristol, Connecticut—October 25, 1859. The patent is owned by Mr. Wyllys Ladd of Bristol, and loaned to us for the purpose of transcription:

THE SCHEDULE REFERRED TO IN THESE LETTERS PATENT, AND MAKING PART OF THE SAME

To all whom it may concern:

Be it known, that I, Joseph Ives, of Bristol, County of Hartford, and State of Connecticut, have invented certain new and useful improvement in time keepers, and I do hereby declare, that the same is described and represented in the following specification and drawings; and to enable others, skilled in the art to make and use my improvement, I will proceed to describe its construction and operation referring to the drawings in which the same letters indicate like parts in each of the figures.

The nature of this improvement is as follows: and constitutes a new and useful feature in the manufacture of time keepers, and first, improvement in the propelling power, by combining the spring lever, and cam, so as to produce an equalized power to the movements at all times. Second, by the substitution of planished or unplanished tin, a heretofore unknown material in the manufacture of the running gear of clocks, in



combination with the rolling pinions; and third, the employment or introduction of the rolling escapement into the crown wheel. In the drawings:

Fig. 1 is a front elevation, showing the mode of combining the spring lever and cam, to produce an equalizing motive power to propel the movements of a clock, and also showing the mode of

proceeding in the manufacture of clocks, whereby I am enabled to substitute planished or unplanished tin for other metals in making the plates between which the running gear is arranged, and the plates for the wheels or gears, showing partly by dotted lines. And in

Fig. 2 is shown an isometrical view of the crown wheel, with the application of the rolling escapement.

In Fig 1 A is the frame work which supports the clock movements, and to which the actuating or motive power is secured. B is a spring composed of one or more metallic leaves, and is secured firmly to the frame work A—C is a lever —D is a cam. Said lever and cam are secured firmly together upon a shaft E. F is a connection from the end of the spring B to the toe end of the cam D. Now it will be observed that by a proper shaped and arrangement of the cam D, with the lever C and spring B, I produce an equalized motive power—the running gear or movements of the clock is arranged between or on two plates, of which G is one. H is one of the gears shown partly by dotted lines. The peculiarity of the plates G., H., etc., consists in the making or in the substitution of planished or unplanished tin, for other metals, in making said plates, gears, etc., for clocks. I am aware, that a feeling of absurdity will at first strike the mind of the observer; but a moment's careful reflection will show that the invention is not an indigenous product of the mind, but that the inventive mind has been called into careful exercise. I first make these plates much in the same way the other metal plates are made, by punching, etc. I sink or raise, or both, a bead or beads on the surface of said plates, which *trues* and stiffens the plates.

The teeth are made much in the ordinary way. For bearings, I make and secure in the plates G, bushings I made of durable and lubricating material, so that I am not dependent upon the thickness of the stock for bearings. I also use the rolling pinion thereby doing away with friction to a very great extent, without the use of which (rolling pinions) the substitution of planished or unplanished ribbed or corrugated tin plate for other metals for running gear, would not be of any use, for the reason that it cannot be used in the common method of making clocks, with the fast leaf pinion. The stock also is much cheaper. It is estimated that a box of planished or unplanished tin which costs ten dollars, will make five h u n d r e d clocks (while the cost of material for a brass clock is twenty-five cents to forty-five cents each, or one hundred and twenty-five to two hundred and twenty-five dollars for the same number of clocks), and requiring less expenditure for labor, is stronger, less liable to bend or break, will not corrode, and is susceptible of a high finish. The propelling power and running gear are connected by a cord M, or chain as desired, and by three turns of the drum L, will produce an eight day movement of the clock. In Fig. 2 J is the crown wheel, K is the verge escapement having "fingers," P are the rolling pinions in the crown wheel J, which roll on the fingers, in their vibratory motion, thereby greatly relieving the friction and necessity of lubricating. Experiments have been made, which has shown, that where a clock would not run at all without the rolling pinion, the application of it (the rolling pinion), to the same clock gave immediate action without any change.

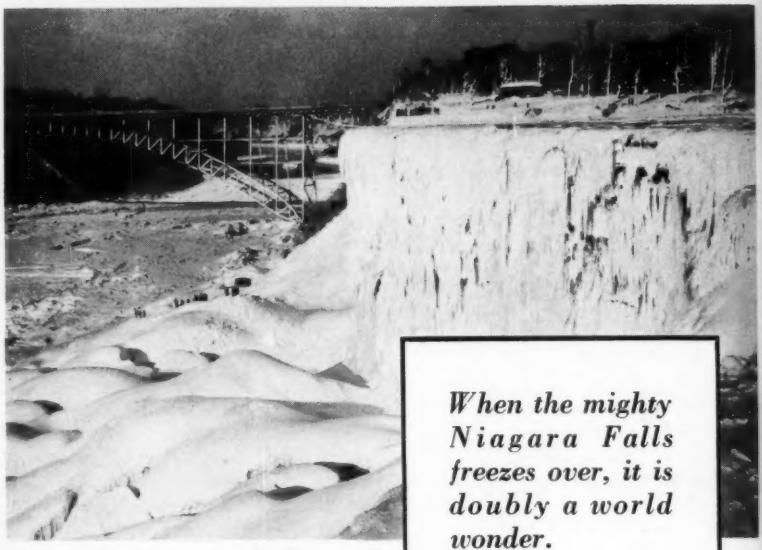
I believe I have thus clearly stated the nature, application, construction and operation, so that a person skilled in the manufacture can make the same therefrom. The advantage to be derived by this improvement over others now in use, are believed to be very great and beneficial to the public. First, a superior time keeper in regard to accuracy, durability, and liability of getting out of order. Second, they are far cheaper of manufacture, and a more desirable article for use and trade.

What I claim therefore and desire to secure by letters patent is

1. The combination of the spring B, lever C, cam D, substantially in the manner as and for the purpose described.

(Continued on Page 24)

FROZEN ASSETS



This recent picture, taken by Dudley A. Hoover, shows the American Falls frozen solid—a rare thing.

When the mighty Niagara Falls freezes over, it is doubly a world wonder.

◆

"Frozen assets," however, when found in business, are a liability.

Frozen assets where jewelers and refiners are concerned? Simply old gold that the jeweler could collect and doesn't.

If the refiner directly asks the public for old jewelry, he is criticised for taking profits away from the jeweler.

If he leaves it to the jeweler, he is dependent on the jeweler for results.

If the jeweler waits till people walk into his store with old gold, possible profits are minimized.

People are surprised that they can still find so much old gold around home, and among friends.

Stimulate them to do so. It's easy, and directly to your interest.

Hoover & Strong, Inc.

ESTABLISHED 1912 — 119 W. TUPPER ST., BUFFALO, N. Y.

We refine all jewelers' wastes containing precious metals, and manufacture a complete line of jewelers' golds and solders.

Removing and Replacing Balance Staff

By W. H. SAMELIUS

The new Elgin 8/0 movements embody the most modern methods of watch design and manufacture. The use of Friction Jeweling and the reduction of manufacturing tolerances to unbelievably small limits make this new watch one with completely interchangeable parts. The new scientifically designed power assembly, including barrel, mainspring and a new type of mainspring brace, delivers a uniform flow of power and enables the watch to run 45 hours on one winding. This insures a practically constant motion of the balance during the 24-hour interval between normal windings. A newly designed stemwind with double locking gives maximum safety of operation in both winding and setting positions. The extra sturdy plates, combined with a new method of steady pinning, have produced an extremely rigid assembly. The hard bimetallic balance has been scientifically proportioned to give the maximum strength compatible with complete temperature compensation. The screws have coarser threads to prevent overturning. The use of large size ruby and sapphire jewels enhances the general appearance of the movement. The new separable steel dome and the removable lower balance end stone makes it possible to clean the watch without removing the balance jewels, thus preserving the original proper endshake.

In repairing the new Elgin 8/0 watch some modifications to the usual procedure are necessary. These are described in the following paragraphs for the benefit of the watchmaker:

Removing and Replacing Balance Staff

In replacing a broken balance staff, see that there are no cracked balance hole jewels and that balance hole jewels are perfectly clean, then see that there are no punch marks under the balance bridge, if so, remove them by means of a very fine file so that the balance bridge may be properly located when fastened to the plate. Examine to see that balance bridge has not been bent upward or downward, the bridge must be perfectly parallel with the plate proper, insuring us that the balance hole jewel is perfectly upright, then select a staff that fits the balance jewels, allowing the staff to rock approximately 10 degrees, this will give us ample side shake for the pivots. Then check the staff for length, making sure the end shake is correct.

See that the roller table fits properly, the roller table should drop on to a staff to within its own thickness of the shoulder so that when driven on it will be perfectly tight. Many jobs are spoiled by driving a roller table on that is too tight. The roller table itself is liable to crack or the balance staff is liable to warp.

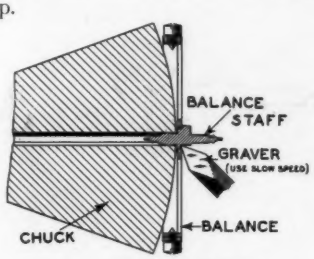


Fig. 1—Cutting off Hub.

We are now ready to fit the new staff to the balance wheel. Figure No. 1 shows the method of removing staff from wheel, by holding the staff in lathe, chucking the hairspring shoulder, carefully cut away the hub until wheel drops

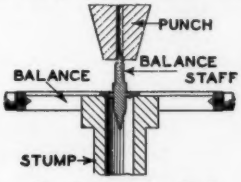


Fig. 2—Removing Staff.

off. Never drive the staff out of wheel as driving the staff out only enlarges

the hole or distorts the balance arm so that considerable trouble is experienced in truing the wheel. Figure No. 2 shows method of tapping the staff out of the

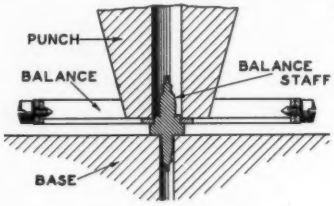


Fig. 3—Replacing Balance.

wheel after the hub has been cut out. Sometimes the staff is a little tight not allowing the balance wheel to come off freely.

Figure No. 3 shows method of placing the wheel on the staff, placing the

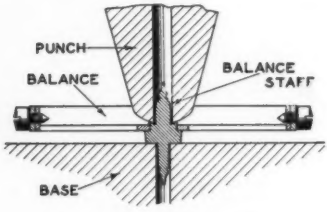


Fig. 4—Spreading Rivet.

staff in staking tool and with a flat faced punch, tap wheel to place. Figure No. 4 shows using the round faced punch for spreading the rivet and Figure No. 5 shows the rivet being flattened

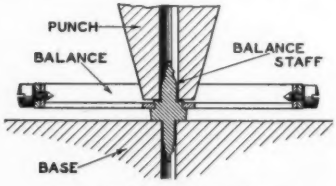


Fig. 5—Finish with Flat Punch.

down so as not to leave any uneven surfaces or headings that might throw the hairspring collet out of flat.

If these steps are followed carefully, making sure the staff is properly centered in staking tool, and the proper sized punches used, which must be kept in good condition, are followed, very little trouble or none at all should be experienced in replacing a broken staff. It is understood the balance must be properly trued and poised after this work is done.

Removing and Replacing Friction Jewels in the Modern Elgin Watch

Figure No. 1 shows procedure of removing balance end stone and setting from cock dome. This dome is supported over hole in base of staking stand and the end stone is removed with a flat faced punch, slightly smaller in diameter than setting.

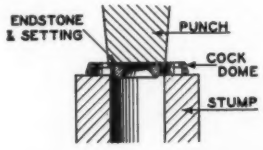


Fig. 1—Removing End Stone.

Figure No. 2 shows the removal of balance jewel from pillar plate, support plate on staking tool with dial side of plate down, drive out jewel and setting with flat faced punch slightly smaller in diameter than setting.

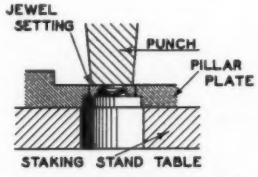


Fig. 2—Removing Balance Jewel.

Figure No. 3 shows the removing and replacing of train jewels and settings. The procedure is similar to that of removing balance jewels.

Figure No. 4 shows end stones and settings being replaced in cock dome by

means of a flat faced punch slightly larger in diameter than setting. This

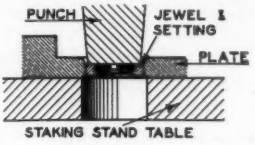


Fig. 3—Removing Train Jewel

brings the face of the end stone exactly flush with the surface of the cock dome,

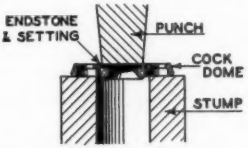


Fig. 4—Replacing End Stone.

which is the correct position. The dome is now ready to be assembled on the cock.

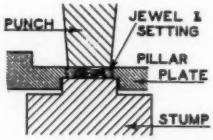


Fig. 5—Replacing Balance Jewel.

Figure No. 5 shows the replacing of the lower balance jewel and setting. Support the pillar plate dial side down on a stump, the stump should be slightly smaller in diameter than the recess for the end stone setting. Using a punch slightly smaller than the diameter of the setting, driving the setting down to end stone seat. By this method, the original end shake is still maintained.

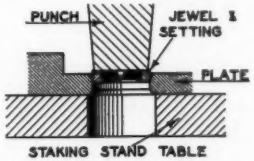


Fig. 6—Replacing Train Jewel.

Figure No. 6 shows replacing train jewels and settings. The procedure is similar to that of removing and replacing balance jewels and is shown graphically. All hole jewel settings are to be pushed into the plates from the joint line side of the plates as shown in the various illustrations.

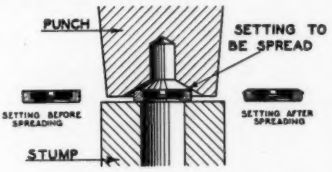


Fig. 7—Tightening Jewel Settings.

Figure No. 7—Tightening Jewel Settings. If a loose fitting jewel setting is encountered due to repeated removal and replacement, the following procedure should be followed to create the necessary friction. Place the setting, joint line side up, on stump of staking stand. By means of an inside taper punch, the stock in the edge of the setting is rolled over, increasing the diameter sufficiently to give the required friction.

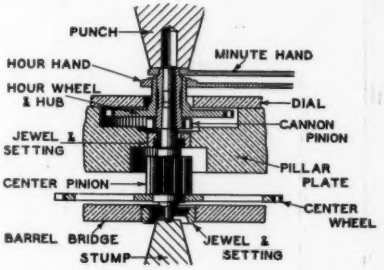


Fig. 8—Replacing Hands.

Figure No. 8—Replacing Hands. In replacing hour and minute hands, support center staff on stump and drive down the hour and minute hand with suitable flat faced hollow punch. Hour hand is to be driven on to hour wheel to position slightly below top of hour wheel hub. Minute hand is to be driven to seat on cannon pinion. By this method the jewels remain in their original location and the end shake of center arbor is undisturbed.

A PUBLIC APOLOGY—

To Dealers and Jobbers

who have not had their full shipments of

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The New Super-Strong Round Watch Glass

WE APOLOGIZE for our inability to keep you supplied with the new FORTILLES.

HOWEVER, the fault is not entirely ours. When we introduced the new FORTILLES less than two months ago, we had no indication it would be a leader in the industry so rapidly. Optimistic as we were, experience pointed to at least six months before the Trade, generally, would appreciate the superior advantages of FORTILLES.

BUT, the demand was *instantaneous*. Immediately when FORTILLES were placed on the market, orders poured in from all over the country. Our first shipment from France was exhausted within a few days. Additional Glasses have gone out as rapidly as they have been received, and cabled advices from us have put our factory on a capacity production basis.

WE WILL soon catch up to the back-order demands of the Trade, and we ask your indulgence and co-operation for just a few weeks' longer.

BUT—if you haven't placed your order yet for FORTILLES, do so *now* to avoid delay, when the new Spring season calls for increased Watch Sales featuring the popular Round Glass models.

FORTILLES popularity is proof that **better** merchandise means **better** business. Here is a Round Watch Glass of **feature** characteristics. The **perfected** V.T.F. annealing and **greater** thickness has made it the **strongest** Watch Glass on the market—its absolute **transparency** and **full clearance** for the watch hands has made it the most demanded glass for the new-style Round Watches.

Fortilles Prices:

	Gross	Dozen
Bracelet and the new Pendant and Fob Sizes—3 to 12-15/16	$13.20	$1.35
Pocket Watch Sizes—16 to 20-15/16	21.00	2.10

FORT-i-fied against Breakage plus
Lent-ILLES Chevees smartness and finish.

HAMMEL, RIGLANDER & CO., Inc.

209 West 14th Street **NEW YORK CITY**

FORTILLES Trade Mark Registered
U. S. Patent Office

ORDER THROUGH YOUR JOBBER

Ingold Fraise

By C. A. BRAUN

An excellent article by Jes Hansen, descriptive of the Ingold Fraise, appeared in your January magazine. This article was timely written, as we are again back to the six leaf pinion in the small wrist watches. As each tooth of a six leaf pinion must be driven through an arc of 60 degrees before the next tooth takes hold, some of the driving must be done before the pinion leaf reaches the line of centers. If the epicycloid curve were generated on the wheel tooth so it would drive the pinion 60 degrees from the line of centers, the wheel would be so large that the teeth would lock horns with the incoming pinion leaf. Therefore, driving before the line of centers is necessary, and as there is a certain amount of wedging and friction involved in this before the line of center driving, it is highly important that the teeth be smooth.

The lines left by the cutter on the wheel tooth, which are at right angles to the movement of the wheel have been known to actually stop these small watches when they were cleaned in high test gas alone, the gritty surface stopping the wheel while it was in the act of the frictional driving before the line of center.

Some watchmakers have rolled the teeth of the wheel upon paper having a thin smudge of oil on it to produce just the faintest film of oil to offset this wedging. The Ingold Fraise smoothens the teeth because the planing is in the direction of the lines of transmission and obliterates the lines left by the cutter when the wheel was made.

In using the Ingold Fraise it will be found that a number of the fraises have the same pitch, but are of different diameters. It is well for the repair man to experiment on a number of wheels, cutting only half way around and then comparing the cycloids so as to produce the same shape of tooth. The different number of leafs in pinions requiring different addenda, also different ratios require different curvatures, and the repair man will be able to thoroughly master this valuable instrument, the Ingold Fraise.

Most trains have the epicycloidal form of teeth, but some have the equipotent. The transmission of force is even more uniform than in the epicycloid, but there is a little drop, which sometimes wears the pinions.

In watching the arcs of the balance wheel and its periodical accelerations and reductions it will be easy to determine whether the barrel or center wheel has faulty transmission of force.

Sometime in repairing watches in which the train recoils with apparent perfect freedom, on inspection of the wheels it will be found that only one or two teeth are bright on the side of the tooth not used, being proof of insuffi-

(Continued on Page 27)

WORLD'S STANDARD FOR OVER A CENTURY

GENUINE AMERICAN WATCH MATERIAL SOLD EXCLUSIVELY

450 SIZES

GENUINE SWISS WATCH MATERIAL SOLD EXCLUSIVELY

WITH FINISHED ENDS FOR ALL MODELS OF SWISS WATCHES ONLY
$2.50 DOZEN—$30.00 GROSS

Complete Stock of Jurgensen Main Springs with Unfinished Ends

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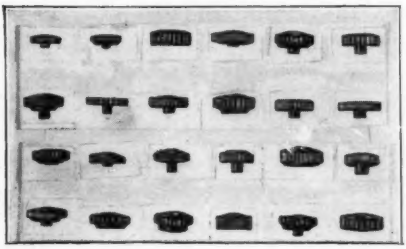
168 MOST POPULAR CROWNS

78 YELLOW Gold Filled
52 WHITE Gold Filled
14 GREEN Gold Filled
24 CHROMIUM



CHART

Listing the style, kind and cases they will fit, included.

2-DRAWE

Beautif rain

Size 11⅝ i in
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AMERICA'S FOREMOST WATCH A

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DETROIT MILWAUKEE
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A GREATER VAL

WN ASSORTMENT

WEL CABINET

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11⅝ i inches deep,
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with Steel Cabinets

CROWNS for all Sizes

POCKET—WRIST—
BAGUETTE to 18 SIZE

1/10 14K GOLD FILLED in
YELLOW—WHITE—GREEN

and in CHROME for the
Most Popular Watches

New Styles

in Yellow with thin flat tops, Wadsworth styles, Gruen Models, etc, included in this system

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No. YN9858. 168 Crowns in 2 Drawer Steel Cabinet, with illustrated Chart. 1 Crown in each Bottle and 12 Extra Bottles..... **$37.50**

$3.75 **A MONTH** **FOR TEN MONTHS**

TCH AND JEWELERS' SUPPLY HOUSE

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DULUTH PITTSBURGH
LOS ANGELES OKLAHOMA CITY

Paulson Time Micrometer

(Continued from February)

IT WILL be readily understood that instead of using a clock to control the flash as shown in figures A, B and C, any other suitable device can be applied. In the case of a pendulum clock, the problem was easy; we just had to make an arrangement so that the pendulum makes contact at regular intervals.

When we want to time a watch, a different apparatus must be used. Figure F shows a schematic diagram of the arrangement used with the Paulson Time Micrometer. Microphones are used to "pick up" the vibrations of the watches and transform these vibrations into electric impulses. These impulses excite the grid of a vacuum tube of an amplifier which amplifies these extremely weak impulses thousands of times, so that each impulse causes neon lamps connected to the output of the amplifier to flash.

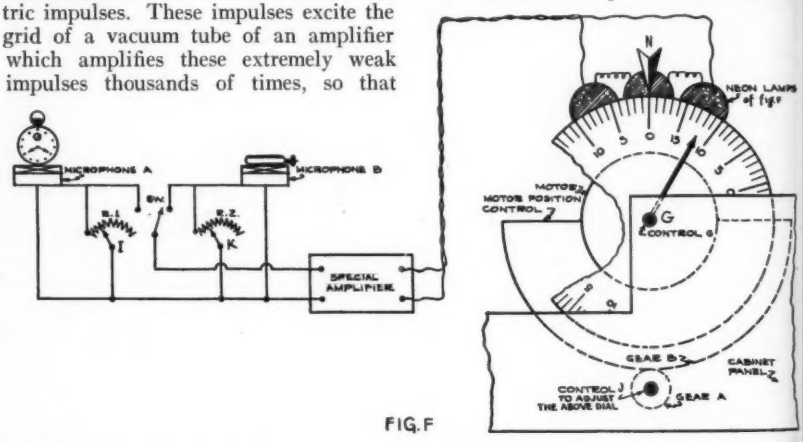


FIG. F

It is well known that the sound of the watch is of a very composite nature and of considerable duration. If the flashes were true reproductions of the sound of the watch, they would be blurred, so that it would not be possible to read the gradings. Therefore, the amplifier is specially designed to overcome this difficulty and make the flashes from the output of the amplifier clean and sharp no matter what kind of watch is used to excite the microphone.

As may be seen from figure F, the neon lamps are located under the dial. The gradings of this dial are transparent, and will therefore, be illuminated each time the neon lamp flashes, or which is the same, every time the watch ticks. Most watches give 5 beats per second, therefore we presume throughout in this description that we are handling 5 beat watches.

Previously we used a pendulum for our illustrations, the period of which was 1 second. (Period means a swing from, for instance, left to right and back to the left.) The speed of the dial was also one revolution per second. The dial was graded all around in 100 divisions. You will see that like 2 plus 2 equals 4, the principle is perfect. Now that we get 5 flashes per second instead of one flash per second, it will be readily understood that the dial shown in figure D will not synchronize with the flash. If the watch were running at the correct rate and presuming that we see 0 at once flash, the next flash would show up "20" (1/5 of a revolution; 1/5 second after the first flash), the next flashes would show "40," "60," "80" and then "0" again. See Fig G. This would repeat indefinitely. In order to correct

this, we could speed up the dial to 5 revolutions per second in which case it would synchronize with the flash. Errors in the escapement mechanism of most watches and some errors in the gears of the electric motor used for driving the dial makes it impractical in most cases to use a higher speed than 1 revolution per second. Otherwise the dial would jump back and forth near a number instead of striking right on the line. This would make it hard to read the

FIG. G

dial scale. A little thought would show us that if we divide the dial so that after the first "0," we get a 0 at 20, another at 40, another at 60, and another at 80, the dial will synchronize with the flash. Figure G shows a dial divided this way. It will be easily understood that this dial when rotating at a speed of 1 revolution per second illuminated 5 times per second, will work in the following way.

By knob (J) in Fig. H, the dial can be revolved so that 0 shows at the index (N). Now presume that 0 No. 1 is at the index; see dial Fig. G., $\frac{1}{5}$ second later the dial has turned $\frac{1}{5}$ revolution, or to 0 No. 2 and just in that moment the second flash illuminates the dial showing 0 at the index. $\frac{1}{5}$ second later the 0 marked No. 3 in figure G has turned up to the index, and the third flash illuminates the dial, making 0 to appear under the index. This will repeat indefinitely as long as the dial runs exactly correct speed and that watch runs at exactly the correct rate. If the watch should run fast or slow, the 0 would drift respectively clockwise, or counter clockwise as previously illustrated.

It has so far been taken for granted that the dial revolves at exactly the right speed. This is true, for instance, when a tuning fork frequency standard is used to generate the c u r r e n t driving the motor. In most cases, however, the Paulson Time Micrometer operates directly from the alternating current lines. The frequency of the alternating current may average so that over a long period—an hour, a day, etc.—an electric clock may keep nearly perfect time. This accuracy depends on the fact that the speed of the generators at the power stations is corrected continuously. Over a short period — a few minutes — the frequency may be off as much as $\frac{1}{10}$ per cent. In

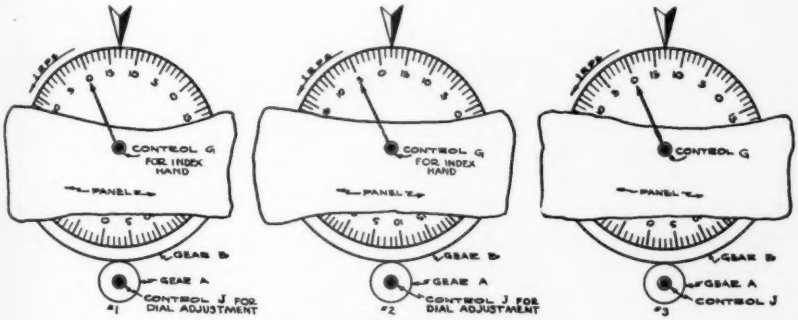


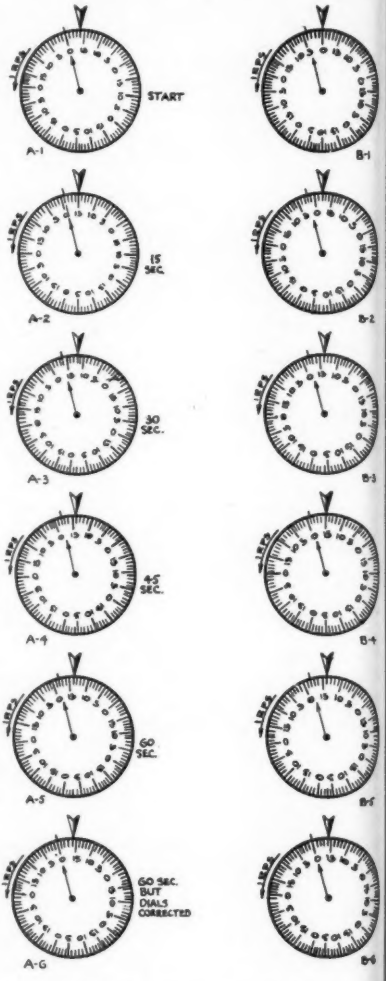
FIG. H

time this corresponds to about a rate of 2 minutes per day. It must be understood that if this error is not compensated for, it will enter as an error in our estimate of the rate of a watch that is timed at the occasion. Figure (H) (1 to 3) serves to illustrate how this correction is accomplished.

The method of revolving the dial is shown by figure F. The half-moon shaped disc (gear B) is fastened to the motor disc (gear A) engages this half-moon, and by turning knob (J), the motor with its dial can be revolved or moved to any desired position.

Supposing that the frequency of the current driving the motor is too low. This will cause the motor to run too slow. The dial is being illuminated by the beats or ticks that flash the master or correct watch. We set the hand to 0 as shown at 1 (Fig. H). After a certain time (1 minute, for inst.) has elapsed, the 0 will have drifted past the hand in a clockwise direction (because the motor is slow) as shown at 2. Now what does this tell us? Just that the dial has lost the relation between that hand and 0. It goes without saying that the way to make a correction is to turn the dial ahead an equal amount to what it has lost, in other words, turn zero back to the hand. That this has been done is illustrated at 3. If the motor had been running fast, the 0 would have drifted counter clockwise. In correcting the dial it is, however, not necessary to turn it in any particular direction, depending on what way it has drifted. As long as the dial is revolved—one way or the other—so that the 0 lines up with the hand, any error, however, large or small, is eliminated.

The schematic diagram figure F shows plainly that when one of the microphones is connected to the amplifier, the other one is discontinued. When the microphone selector switch (H) is thrown left, the beats of the standard watch causes the illumination of the dial. Once the hand (0) is lined up with the (0) on the dial, the (0) would remain there indefinitely if the pulsations of the alternating current were correct. If they are not correct, 0 will drift away from the hand. But, we repeat, this does not affect the timing, because 0 can either be *brought back* in line up



with the hand *from time to time* or be *kept* at the hand by constantly *turning* the motor, with knob J, so that it stays at the hand. When the switch (H) is thrown to the right, the beats of the watch under test (the one on the right hand microphone) causes the illumina-

tion of the dial. Thus when the switch is thrown from one side to the other, the position of the dial changes. For instance, if 0 is under the center hair line in the dial opening when the watch under test controls the flash, the 0 may be a number of divisions to the right or left of the center when the microphone holding the standard watch is switched on to the amplifier.

Figure 1 illustrates the appearance of the dial at 15 second intervals during a timing process of 1 minute. The first 5 dials to the left represent the view of the dial at different timese when illuminated by the flashes caused by beats of the standard watch, and the 5 dials to the right shows the appearance of the dial at corresponding moments, but the dial being illuminated by the flashes caused by the beat of watch under test. Figures A6 and B6 represent the same moment as figures A5 and B5, but the dial has been turned back, so that 0 lines up with the hand. In other words, correction for the error in the speed of the motor has been made.

How by Aid of Index Hand Correct Rating Is Read Despite Fluctuating Current

By the aid of figure 1 it will now be shown how the complete timing operation is done:

With the watch under test, switch to the right, illuminating the dial, we have brought 0 to the index (N) (Fig. B1). This was done by knob (J) (see Fig. F). Immediately after, throw switch to left and adjust the hand (G) with 0 on the dial (see Fig. A1). We are now illuminating the dial by the standard watch. Now we can switch over from time to time from one watch to the other and observe how the dial is drifting. We will presume that the watch under test loses at a rate of about 1 minute per day and that we take an observation every 15 seconds. A2 shows that the 0 has advanced 1 division past the *hand,* and figure B2 shows that the 0 (illumination now by the watch under test) has drifted 2 divisions counter clockwise from the index (N). If, as we presumed the watch is running slow at a rate of 1 minute per day, then the 0 would be expected to have drifted only 1 division from the *index.* Why has it drifted 2 divisions? Simply because the motor is too fast and as shown at A2, the dial has now advanced the 1 division. This drift plus the drift caused by the losing rate of the watch, gives a total drift of 2 divisions as shown by figure B2. The entire drift was caused by fluctuation in your current.

Figure A3 shows that the 0 has now advanced 4 divisions from the *hand.* Figure B3 shows 6 divisions drift from the index (N). 4 divisions are caused by the dial advancing and 2, as expected, by the slow rate of the watch under test.

At A4 we see that the dial is advanced only 2 divisions past the *hand.* This shows that the motor during the last 15 seconds has lost 2 divisions. B4 now shows that 0 has drifted 5 divisions from the *index* (made up from 2 divisions motor drift and 3 divisions corresponding to the slow rate of the watch).

At A5 the 0 is still 2 divisions ahead of the hand which shows that the motor has kept exactly the correct speed during the last 15 seconds, staying at the same error as 15 seconds ago. B5 shows 6 divisions drift from the *index.* Now we know that 2 divisions are caused by the motor error, and thus by subtracting 2 from 6, we would get the correct drift caused by the watch. However, we can do this without any figuring.

Illuminating the dial from the standard watch, we turn the dial back so that 0 lines up with the hand (as it did when we started at A1.)

That this correction has been done is shown by figure A6.

Switching over to the watch under test immediately after the dial has been lined up with the hand (as shown in figure A6), we read a dial drift of 4 divisions (as shown at B6).

"You cannot dream yourself into a character; you must hammer and forge yourself one."—J. A. Froude.

Horological Association of Pennsylvania

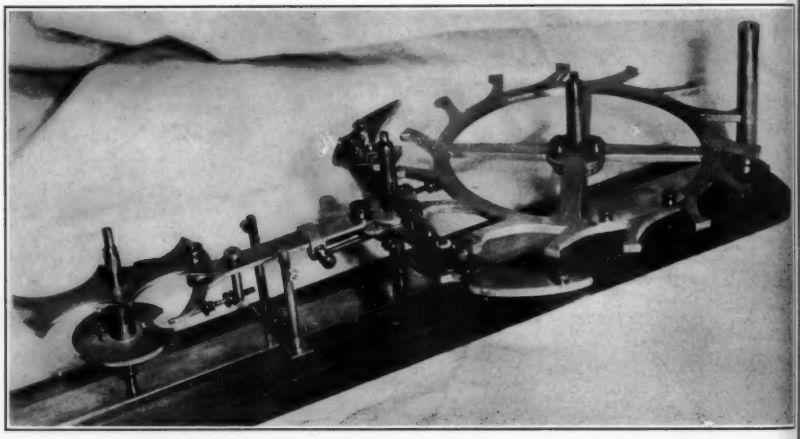
The technical meetings of our organization have been well attended and appreciated.

Under the guidance of Mr. Joseph Bienel the members have been able to improve their ability and knowledge of the escapement. Mr. Bienel has made an enlarged model of the escapement in a very flexible manner. Many of the ills of the escapement can be worked out on this model. Reproduction of same appearing on this page. Every member will have the opportunity to make his adjustments after this model is thrown out of gear.

Its flexible or adjustable features are, namely: tooth adjustment and eccentric on pinion of the escape wheel. The pallet stones are both adjustable. The pallet arbor and fork arm are on an eccentric, and the arm can be lengthened or shortened. The guard pin can be moved up, down, in, out and all angular positions. This subject and model has proven to be very interesting, and it has taken Mr. Bienel several months to work out the any number of possible adjustments.

From time to time educational technical features will be worked out on a similar plan. We invite all Horologists to attend our technical meetings and become acquainted with the work we are doing to advance a higher appreciation of the scientific application to our craft.

MANDEL, *Ass't. State Sec'y.*



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GENUINE AMERICAN AND SWISS WATCH MATERIAL

COSLEY JEWELRY COMPANY

301 UNIVERSITY BUILDING DENVER, COLORADO

DO YOU KNOW?

Directed by
W. H. SAMELIUS, Chairman
Science of Horology and Technical Advisory Board

Christian Huyghens is credited with applying the first pendulum to clocks about 1660.

Drop—In an escapement, the space through which the escape wheel moves without doing any work.

Double Roller Escapement—A variety of lever escapement in which a separate roller is used for the guard action.

Dog Watch—A period of two hours which occurs twice in the nautical day, the first beginning at 4 o'clock and the second at 6 o'clock P. M.

Diamantine—A preparation of crystalized boron.

That there is the same current consumption whether the electric clock is stopped or running.

Synchronous Speed—A speed having a definite fixed relationship with a frequency of the alternating current.

Worm and Worm Gear—Used where high or low gear reduction is required, as in the music box, electric clock or phonograph.

The U. S. Naval Observatory was founded at Washington, D. C., 1842.

The Sextant was invented by Thomas Godfrey of Philadelphia, 1703.

Watch glasses were introduced as a protection for watch dials and hands in 1620.

Our first American watch factory was organized by Luther Goddard at Shrewsbury, Mass., in 1809, was discontinued six years later.

That magnetism will cause a watch to run erratic, either fast or slow and if sufficiently magnetized, will cause it to stop.

Steel expands .0011 of its length between 32 and 212 degrees F. Lead expands .0028 of its length between 32 and 212 degrees F. Brass expands .0020 of its length between 32 and 212 degrees F.

Circular Pitch—The circumference of a circle divided by the number of teeth.

The Elgin Watchmakers College was founded at Elgin, Illinois, in 1921 for the purpose of training competent all-around workmen for the watch repair trade.

Marine chronometer balance wheel makes 14,400 vibrations per hour.

Elinvar—A coined word derived from "elasticity invariable."

Two pendulums of equal length will not keep the same time if one were to be placed at the equator and one at the North or South Pole. This is due to the force of gravity which varies somewhat with its distance from the center of the earth.

Nuremberg claims the introduction of brass watch plates and wheels about 1530 A. D.

Wooden clock movements were made in the United States as late as 1825.

A pendulum 39.14 inches long beats the exact seconds.

Christopher Columbus used a wooden wheel clock on board the Santa Maria when he started out on his voyage of discovery in 1492. This clock did not employ a pendulum but, instead, a balance or folliot.

In 1850, the American Horologe Company, the nucleus of the Waltham Watch Co. of today, was founded at Rocksbury, Mass.

OHIO WATCHMAKERS ASSOCIATION, Incorporated, holds their State Convention in Dayton, March 29th, at Van Clove Hotel. A goodly crowd is expected. All state watchmakers are urged to attend.

"In Dayton Its the Van Cleve"

The Arrangements Committee for State Convention, Stanley Matson, R. E. Fisher, B. E. Shaw.

Dayton Guild elected new officers for 1936 — B. E. Shaw, President; Chas. Hoese, Vice President; S. V. Geile, Treasurer; M. C. Rife, Secretary, 3rd term; Paul O. West, Sergeant at Arms.

Cart Spring Movement

(Continued from Page 9)

2. I claim the substitution of ribbed or corrugated, planished or unplanished tin plate for running gear, and (for other metals), when used in combination with the rolling pinion substantially as and for the purpose described; and

3. I claim making a crown wheel with rollers instead of teeth, to prevent slide and friction upon the verge or palate, in the manner as and for the purpose described.

WELCOME
TO DAYTON
Ohio Watchmakers Assn., Inc.
2nd Annual State Convention
MARCH 29, 1936
Dayton Guild

Peter Henry & Son
Arthur P. Henry, Successor
Gold and Silver Refiners
ALSO
WATCH CASE REPAIRING
ESTABLISHED 1872
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U. H. A. A. Policy

ONE OF THE PIONEERS

In 1934 the U. H. A. A. conceived and was one of the pioneers in the industry of a plan to uplift the Horological Statutes in general. The goal to be attained by such a policy as outlined was to protect the public, to create a sign of National recognition, and to prohibit this sign from getting into channels which were detrimental to the trade in general. Such a policy protects the retailer to the extent that he is guaranteed a fair policy and he is fairly certain that his competitor is not servicing the same article at a lower price. The wholesaler is also protected in that National members will lend their support for their co-operation, which in one sense lessens his competition and the necessity for cutting prices and giving special favors.

There is one fundamental and basic principle by which business must exist. Each branch of our industry must make a fair profit. If this profit is taken away from one of the branches it is impossible for that unit to function properly. We believe in a fair profit for all service and for the retailer, and we intend to continue along these lines. We are indeed happy to see so many Associations in this industry today following the policy which our National advocates. We believe it is to the benefit of the retailer and the watchmakers to concentrate their efforts with those who have demonstrated their willingness to stand for certain principles which guarantee fair profits to watchmakers and retailer alike.

When looking for better time service, look for the National sign of Recognized Horologists.

Saint Peter—Where's that fellow that arrived yesterday?

Gabriel—He checked out this morning. Heaven wasn't good enough for him. He said he came from California.

The average man lives 31 years longer than he did in 1800. He has to in order to get his taxes paid.

Constant and Consistent

It's a pretty well established fact that the *consistent* newspaper advertiser gets results:

"If you toot your little tooter,
Then lay away your horn,
Within a month there's not a soul
Will know that you were born;
The man who tries to advertise
By short and sudden jerks,
Is the man who's always kicking
Because it never works."

Never forget a customer and never let him forget you, is one of the most successful rules to follow.

We invite the support of all the better workmen of our state to support the cooperative movement now well on the way, by organization of guilds and applying for membership in our association.

Affiliate No. 15

Horological Assn. of Nebraska

15th Anniversary

America's Leading Watch College

Hundreds of outstanding jewelers got their start in world-famous Elgin Watch College. Many graduates now own successful businesses. Others are skilled watchmakers. This institution is sponsored by the Elgin National Watch Company. Training includes regular shop work and instruction by Elgin master craftsmen. Limited number of openings now available for young men over 17 who wish to get into this highly paid field. Rare opportunity. Modest tuition. For full particulars address Dept. E-2.

ELGIN WATCH COLLEGE

W. H. Samelius, Registrar Elgin, Illinois

Our work costs no more than ordinary work.

Incomparable Watch Case Repairing

BECKER-HECKMAN COMPANY

29 East Madison St. Chicago, Illinois

New Haven Guild

Reports their annual dinner dance was a huge success financially and fraternally. Everyone had a grand time, and look forward to the next one.

The Guild Bowling Team offers the members an added yet effective piece of advertising and diversion. They secure weekly publicity in the papers, which helps advertise their cause to the public. This form of diversion is recommended by the Guild to all other associations where interest is lagging.

Connecticut reports the creation of another Guild in New London. We salute this new Guild, wishing them every success.

"Good habits in America make any man rich. Wealth is a result of habit." —John Jacob Astor.

Doctors have been counting the pulse by watches ever since 1690.

Master Watchmakers Association of Oregon

Regular meetings held first and third Tuesdays of the month at Chamber of Commerce Building, S. W. Fifth Avenue at Taylor Street, Portland, Oregon.

The State Organization is working diligently on the creation of additional Guilds as announced in our January issue. Interest is running high, and all members and prospective members are urged to attend our regular meetings.

HAROLD SABRO, *Secretary*

Change of Address

If your address has been changed, notify National Headquarters at once. delay on your part will cause the interruption of your monthly contact.

The E. & J. Swigart Co.

CINCINNATI, OHIO

A Good Supply House

We urge our watchmaker friends to attend the second annual national convention of the United Horological Association of America, Inc., to be held in Cincinnati, April 27, 28, 29, 1936.

MAKE OUR STORE YOUR HEADQUARTERS

W. P. A. Contributes to Encouragement of Chiseling Element

One of the most thoughtless detrimental issues by our government against the horological craft has come to our attention. The following notice appears in Toledo newspapers:

"Watch Repair Art Taught by W. P. A.

"Opportunity to learn the art of watch repair work is being offered Toledoans through the WPA with A. J. Spillane, instructor. He also plans to teach the value and origin of precious stones and the testing of old gold.

"Anyone wishing to attend the class may contact Mr. Spillane at 237 Summit street, or by telephoning the residence of C. E. Salisbury, 137 Rosalind place."

The United Horological Association of America has filed complaint together with proof of reason against all such practice.

If the WPA is to be discontinued in April or June what degree of benefit can be derived by the public, and how far can a student progress in that time? Perhaps just far enough to become encouraged to think our craft is easy. Thus the government encourages more chiselers.

We understand the WPA set aside $1,500 for this project. Can you visualize a school being operated on such a sum?

Ingold Fraise

(Continued from Page 15)

cient clearance. The Ingold Fraise will reduce these high teeth without affecting the others. The real solution of uniform transmission of force in trains having six leaf pinions lies in teeth inclined from the vertical and cap jeweled thrust bearings.

Professor: "Can you give me an example of a commercial appliance used in ancient times?"

Student: "Yes, sir, the loose-leaf system used in the Garden of Eden."

An Invitation

The Elgin National Watch Company and Ray Dooley invite you to listen in to the premier broadcast of radio's newest hit show, "Eddie Dowling's Elgin Revue."

A new radio show, "Eddie Dowling's Elgin Revue," sponsored by the Elgin National Watch Company, makes its initial bow over the air on St. Patrick's night, Tuesday, March 17, from 9 to 9:30, central standard time, over 58 N. B. C. stations.

Featuring Eddie Dowling and Ray Dooley, All-American comics of many stage and Hollywood successes, together with Benny Goodman and his sensational "swing" band with Helen Ward, songstress, the revue promises to be fast, furious, funny, rhythmical—packed with the magic it takes to make an outstanding hit show.

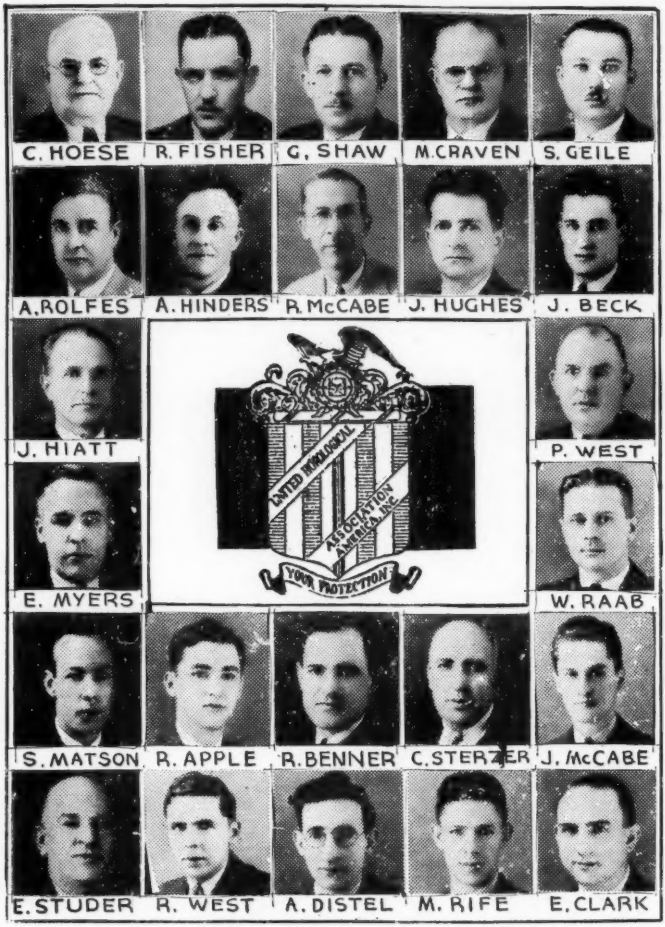
This entertaining program opens at the beginning of the graduation season. Commercials carry the graduation theme, and every broadcast will go right into the homes of 71,000,000 listeners with persuasive selling messages on Elgin gift-giving for graduation. The Elgin company plans a special advertising service for dealers to tie in with the show.

Motoring to the Convention?

FREE—COMPLETE TRAVEL SERVICE

If you are thinking of motoring to the Convention, write the Conoco Travel Bureau, Denver, Colorado, for free travel service. (Or fill in an application card available at any Conoco Service Station.) They will send you a set of maps marked to show the shortest and best routes and the conditions of the roads, illustrated literature descriptive of places of interest, lists of hotels and cottage camps and a Conoco Passport.

"THE AMERICAN HOROLOGIST" is made possible through the advertisers appearing in this publication. Through your patronage *you* can show your appreciation.



Does your watch give you the perfect time that is expected of it at all times? These twenty-four men uphold the Local and National Watchmakers Association in keeping the price in accordance with the times. At all times you will find this select group of men willing to quote on your watch or clock repairs, at no cost to you. They are dependable, reliable and all work guaranteed. Visit anyone of this group today and give your timepiece the attention it deserves.

The accompanying reproduction of Dayton's co-operative advertising gives our affiliates an idea, which has proven to be of benefit. The results are most gratifying. In addition to this, Mr. R. E. Fischer, Advertising and Publicity Manager, arranges to insert weekly, other advertising material of an educational nature to the consuming public, calling our attention to the sign of national recognition, etc. We urge all Guilds to bring about such a co-operative advertising plan. They will find it to their mutual benefit and extremely inexpensive. Dayton has continued this type of advertising for over thirty weeks.

For National and Local Information Contact the Following Organizations

Who function as a combined unit for the advancement of our craft. Membership at large represented in virtually every state.

UNITED HOROLOGICAL ASSOCIATION OF AMERICA, INC., NATIONAL HEADQUARTERS

3226 E. COLFAX AVE., DENVER, COLO.

ORVILLE R. HAGANS, Exec. Sec. FRANK FOEGLER, Pres., 31 E. 4th St., Cincinnati, Ohio

CALIFORNIA

R. D. Lowell, Special Rep., 612 E. 11th St., Oakland.

COLORADO

Master Watchmakers of, Inc.
Wolf C. Hansen, Pres., 1628 17th St., Denver.
O. R. Hagans, Sec., 3226 E. Colfax Ave., Denver.

Colorado Springs Guild
E. E. Goudy, Sec., 520 E. Uintah St.

Denver Guild
D. E. Heigert, Sec., 1580 Logan.

Fort Collins Guild
L. H. Hoffman, Sec., 107 E. Mountain Ave.

Greeley Guild
Howard Weiss, Sec., 829 9th St.

La Junta Guild
M. L. Quackenbush, Sec., La Junta.

Boulder Guild
Fred Comstock, Sec., 1819 Pine.

Pueblo Guild
C. A. Watson, Sec., 1003 Bragdon St.

CONNECTICUT HOROLOGICAL ASSOCIATION

New Haven Guild
A. H. Rosenbeck, Pres., 17 Center St.
Wm. E. Short, Sec., 207 Orchard St.

Waterbury Guild
D. J. Boisvert, Sec., 24 Arch St.

New London Guild
Morris Calmon, Sec., 601 Main St.

FLORIDA

Greater Miami Watchmakers Guild
Ray C. Bauer, Pres., 37 S. E. 1st Ave.

Watchmakers Guild of Tampa
W. S. Nelson, Sec., 6014 Dexter Ave.

IDAHO

Frank D. Orgel, Special Rep., P. O. Box 1416, Pocatello.

ILLINOIS

Joe Schwarz, Special Rep., 6646 Stony Island Ave.

Elgin, Illinois
W. H. Samelius, Special Rep., 267 Grove Ave.

INDIANA

L. R. Douglas, Special Rep., 1013 N. Beville Ave., Indianapolis.

KENTUCKY

Watchmakers Association of
S. H. Shaw, Pres., 305 Mid-West Bldg., Louisville.

Louisiana
Otho C. Formby, Special Rep., 1030 8th Alexandria.

Maryland
James A. Scoccini, Special Rep., 731 W. Fayette St., Baltimore.

MASSACHUSETTS HOROLOGICAL ASSOCIATION

John K. S. Mills, Pres., 313 Washington St., Boston.
Sam Freeman, Sec., 387 Washington St., Boston.

MICHIGAN

H. J. Finch, Special Rep., 15 E. 8th St., Holland.

MISSOURI

Master Watchmakers Association of
Walter I. Betts, Pres., 218 W. Maple, Independence.
Ernst Wetteroth, Sec., 10 Westport Rd., Kansas City.

Kansas City Guild
James W. Anderson, Pres., 4702 Broadway.
Ernest A. Thompson, Sec., 2119 Holly St.

NEBRASKA, HOROLOGICAL ASSOCIATION OF

E. J. Anderson, Pres., 220 S. 16th St., Omaha.
John Lacher, Sec., 554 Brandeis Theatre Bldg., Omaha.

NEW ENGLAND STATES

Thomas J. Fagan, Special Rep., 617 Dextex Bldg., Boston, Mass.

NEW YORK

Buffalo, Watchmakers Association of
B. Paquette, Pres., 11 W. Genesse St.
K. A. Cooper, Sec., N. Y. Central Terminal.

Albany, New York
John De Vogel, Special Rep., 20 S. Pearl St.

Bronx, New York
Herman Cooper, Special Rep., 1698 Vyse Ave.

NORTH CAROLINA STATE HOROLOGICAL ASS'N

Lawrence G. Ballard, Sec., Box 595, Wilson.

OHIO WATCHMAKERS ASSOCIATION, INC.

W. H. Johnson, Pres., 3815 Grantley Rd., Toledo.
Harry Flotemersch, Sec., 406 Palace Theatre Bldg., Cincinnati.

Cincinnati Guild
Frank Foegler, Pres., 31 E. 4th St., Cincinnati.
Walter L. Sturgis, Sec., 118 W. Elder St., Cincinnati.

Dayton Guild
M. C. Rife, Sec., R. R. No. 12, Box 274.

Columbus Guild
L. W. Heimberger, Sec., 245 S. High St.

Toledo Guild
Ed. G. Schirner, Secy., 241 Huron St.

OKLAHOMA

Claude Jones, Special Rep., Box 884, Miami.

Oregon, Master Watchmakers of
R. E. Drews, Pres.
H. Sabro, Sec., 6422 S. E. 17th Ave., Portland.

PENNSYLVANIA, HOROLOGICAL ASSOCIATION OF

Geo. Niesslein, Pres., 200 Westinghouse Bldg., Pittsburgh.
F. Strothan, State Secy., 200 Westinghouse Building, Pittsburgh.

PHILIPPINE ISLANDS

H. S. Cabugao, Sec., Dagupana, Pangasinan.

RHODE ISLAND

Hamilton E. Pease, Special Rep., 51 Empire St., Providence.

TEXAS

El Paso Horological Guild
C. P. Martin, 117 N. Stanton St.
R. L. Nordien, Sec., 3510 Louisville.

WASHINGTON

H. E. Anderson, Special Rep., 301 Joshua Green Bldg., Seattle.

WISCONSIN WATCHMAKERS ASSOCIATION

Richard A. Meisner, Pres., 1839 Green St., Racine.
W. C. Imes, Sec., R. 4, Box 954, West Allis.

Milwaukee Guild
Lester Rakosi, Sec., 617 N. 2nd St.

Racine Guild
H. C. Jensen, Sec., 1648 Kearney Ave.

SPECIAL NOTICES

Payable in advance.
Rates under all headings except "Situations Wanted,"$1.50 for first 25 words. Additional words, 5c a word.
SITUATIONS WANTED, 75c for first 25 words. Additional words, 5c a word.
Heavy type, $2.50 for first 25 words. Additional words, 10c a word.
Name, address, initials and abbreviations count as words, and are charged for as part of the advertisement.
If answers are to be forwarded, postage must be enclosed.
Special notice forms close 30th of month.
Unless the advertiser instructs us to publish his name and address, all answers will be directed care THE AMERICAN HOROLOGIST.

Watchmaker—18 years' experience, want permanent position, any place. Now located in Florida, have family. Address Box A-1, care The American Horologist.

Watchmaker—20 years' experience, wish position in Wyoming, Colorado or Nebraska, best of references. Address Box A-2, care The American Horologist.

CONVENTION VOTING

Article II, Section 5. Each member of the Association shall be entitled to representation in National Conventions on the following basis:

A. Membership of 250 or less—2 votes
B. Membership of 251 to 500—3 votes
C. Membership of 500 or more—4 votes

Representation as used herein shall mean paid-up members to date.

THE WATCH AND CLOCK MAKER
published monthly in England. A review of all that is new and good in Horological Science with particular attention to the needs of the technician. Editor, Arthur Tremayne; Technical Editor, T. R. Robinson. World wide subscription one dollar yearly postfree. N. A. G. Press, Ltd., 26, Old Street, London, E. C. I, England.

Experiences Exchanged

Watch Oiling

T. S. Banta

How many times have you noticed the center wheel pinions of seven and fifteen jewel watches dry and sometimes cut by rust, when the rest of the watch was in very good shape? I believe much of this is caused by using oil that is too light. I have best success by filling the balance jewels with bracelet oil; oiling the rest of the pivots up to center wheel with watch oil, then oiling center wheel pivots and winding mechanism with clock oil.

For the very small bracelet watches, I use bracelet watch oil up to the center wheel, then watch oil on the center pivots and the winding parts.

It stands to reason that fast moving parts have little pressure and require a light oil, while slow moving parts have greater pressure and require a heavier grade of oil.

Getting Oil into Balance Jewels

Take a half length of pegwood, sharpen one end and set into this sharpened end a coarse hair taken from your eyebrow. The root end should be set rather deeply into the wood with a little cement. This hair tip is fine for starting oil down into balance jewels. If tip of hair is too fine, cut it back slightly. This gives you a fine tapering flexible point, and is much better and safer to use than a broach.

The Cocks-Clark ENGRAVING COMPANY
2200 ARAPAHOE ST.
DENVER, COLORADO

INSPECTOR AND SANDSTEEL
Quality Main Springs
For American and Swiss Watches
CROSSCURVED
LIKE
THE EAGLES WINGS
They have MORE POWER
WATCH-MOTOR MAINSPRING CO
145 HUDSON STREET NEW YORK N.Y.

Elgin National Watch Co. Shows Decided Increase

Chicago, Ill., March 1—For the second year since the 1929 slump, an upward increase in sales and profits of the Elgin National Watch Company is shown for 1935 in the report of President T. Albert Potter to the shareholders, which is to be made public today. The company showed its first profit year subsequent to 1929 in the report for 1934.

The net profit for 1935 is shown at $1,071,655.57, an increase of $335,297.38 over 1934 when net profit was $736,358.19. The profit per share for 1935 is $2.68 as against the 1934 profit per share of $1.84.

Since Elgin is the largest American manufacturer of fine watches, deep interest is expressed by President Potter in the outcome of application of the reciprocal treaty, recently signed, between this country and Switzerland, in effect curtailing the tariff protection which existed last year.

Under the treaty a control of watches brought into this country is established, Mr. Potter observes, but "enforcement of the restrictions is left in the hands of a foreign government and a foreign industry." He adds that successful control "will depend largely on the spirit in which the treaty is carried out." However, the greatly increased preference for fine American watches, it is pointed out, should enable the industry to withstand even a tendency on the part of importers to copy the American product.

The report states that demand for jewelry and semi-luxury items has shown an increase in the past year, "due to improved business conditions." As a result of policies of production, "coupled with increased cordial relations with the trade, Elgin's leadership has continued," the report concludes.

The report calls attention to the 1934 balance sheet wherein a write down of "sundry parts in process" from $1,370,155 to $1 is shown. In the current report a partial restoration of value to these "sundry parts in process" is cited, which permits a return to earned surplus of $806,507.12.

The remainder of the "parts" are shown in current inventories as "estimated realizeable value," and "the reserve for inventory includes the remainder of the special reserve as well as the sundry operating reserves and an additional amount of $560,000 which has been appropriated out of earned surplus."

During the past two years new machinery of the value of approximately $500,000 has been added to the equipment which it is predicted will reflect operating improvements in the current year. Increase in advertising activities is proposed "commensurate with our expected business increase."

Have You Noticed?

As watchmakers we are emerging from a retirement forced upon us and almost every other organization by the recent depression. It has affected the entire world and has caused a fluctuation of the values of commodities and a mysterious disappearance of "kale." But, judging from the reports for the fiscal year, it certainly did not affect U. H. A. A. There seemed to be an increase in the progressive spirit and a greater desire to carry on.

It is true that we have less upon which to live, but we have had more to live for —something to fight for—and that was to keep our association and its principles from deteriorating and finally succumbing to the depression. Circulars from the National urged you and every Association or Guild to increase your membership, it seemed that such a thing was impossible, that it would be an effort to secure even one member, much less a Guild. But our first efforts proved that we were not passing on and out with the depression but were waiting for a call to activity.

Nothing can affect the valiant spirit of co-operation or lower the value of loyalty. We informed all that we would have a National Horological Association on our first meeting in Washington, D. C., and we have definitely proven that we have and are accomplishing our aims.

Doesn't that sound more like we are emerging than submerging? As long as we retain the spirit of co-operation we can be assured of prosperity for watchmakers.

Ad in a jeweler's window—"Why go 'round and 'round, when the best work comes out here?"

LOCAL JOBBERS' SECTION

CONSOLI BROTHERS
Watchmakers and Jewelers Supplies
BRIDGEPORT AND NEW HAVEN, CONN.

MARTIN GLUCK & SONS
Jewelers and Watchmakers Supplies
718 PENN AVENUE
PITTSBURGH, PA.

NATIONAL CONVENTION

United Horological Association of America, Inc.

CINCINNATI, OHIO, APRIL 27, 28, 29, 1936

We are proud to offer for your entertainment, April 27th during the 10:00 P. M. and night club entertainment, the talented "WURLITZER MELODY KIDS."

A beautifully costumed complete stage unit show by 50 clever musicians, singers and dancers. A show that is different and a sensation wherever they have appeared.

The Convention Committee have arranged many surprises which will meet with your approval and delight, as they have stated previously. The Horologist attending the 1936 Convention will have something to long remember.

Skyline of Cincinnati, our Convention City, the Queen City "Royal Hospitality." Cincinnatians are very proud of their city and are very proud to have the American Horologists as their guests, as they have also been very progressive in keeping pace with the times.

Inc.

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